Space Weather Forecast

Issued on Thursday, 28 March 2024 at 01:34 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Further Minor/Moderate radio blackouts (R1/R2) expected.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Moderate with the large sunspot region in the southwest producing further Moderate-class flares in the past 24 hours. Five sunspot regions feature on the visible disc. The large region in the southwest quadrant (AR3615) is the most magnetically complex group, with some waxing/waning of its rearward spots. The remaining regions are simple and smaller.
No further significant Earth-directed Coronal Mass Ejections (CMEs) were observed on available imagery over the last 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind at L1 measured by ACE and DSCOVR were elevated at around 550 km/s following the weekend CME that arrived on the 24th March with a decline to slightly elevated levels by 27/1800 UTC. The magnetic field (IMF) was at weak levels. The all-important northward southward component fluctuated weakly between positive and negative. The net result of the above solar wind measures was Unsettled to Quiet geomagnetic conditions.

Energetic Particles / Solar Radiation: Solar radiation was below the S1 threshold.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate solar activity is expected, with further isolated Moderate-class flares expected primarily from the large sunspot region located in the southwestern quadrant of the visible disc.

Solar Wind / Geomagnetic Activity: A coronal mass ejection (CME) associated with the strong flare on the 23rd March arrived at L1 at 24/1410UTC. There are no other Earth directed CMEs currently in the forecast. Solar winds currently are expected to decline erratically towards background values from day 2 (28 Mar) onward in the absence of forecast enhancements. Geomagnetic activity is expected to be Quiet to Unsettled throughout much of the period.

Energetic Particles / Solar Radiation: Solar radiation is continuing to decline from recent enhancement. A continued slow decline is expected in the absence of further significant flare activity.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	70	60	50	40
Very Active	R3 to R5 X	No	20	15	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	20	20	20	20
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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